

A study on Awareness and Uses of Electronic Medical Records among Health Care Professionals

B Reshmi¹, Sabu K M², B Unnikrishnan³

¹ Assistant Professor, Department of Health Information Management,

² Associate Professor & HoD, Department of Health Information Management,

Manipal College of Allied Health Sciences, Manipal University, INDIA

³ Professor, Department of Community Medicine, Kasturba Medical College, Mangalore, Manipal University, INDIA

reshmi.b@manipal.edu, sabu.km@manipal.edu

ABSTRACT

Background: In the current scenario there is more and more dependence on information technology in health care industry. The concept of increased time for quality patient care with use of electronic medical records has emerged as a key issue in health care policy. **Objective:** To assess the awareness and uses of electronic medical records among health care professionals. **Methods:** The clinicians and allied health professionals of the hospital from 35 different specialties were listed and the required sample of the respondents was selected by simple random sampling. The data was collected by using a pre-tested semi-structured proforma. The proforma had sections on awareness, productivity, financial and technical aspects of implementing EMR. **Results:** About 89% of the respondents were aware of electronic medical records. About 27.5% of the respondents stated that lack of time to implement such a system would be the major disadvantage with regards to productivity. Lack of uniform standards within industry would be a technical difficulty in implementing an EMR in the hospital as stated by 20.8% of the respondents, close to 92 % of them felt that privacy /confidentiality would be a major concern for patients.

Keywords: Awareness, Electronic Medical Records, Health care professionals.

INTRODUCTION

Information technology is increasingly recognized as an important tool for improving patient safety and quality of care, especially by promoting the practice of evidence-based medicine. Paper medical records or charts are by nature data rich, but information poor, as physicians and other health care providers have limited time to dig through volumes of paper to retrieve information, utilize it in decision-making and/or share it with patients [1].

Of all the health information technology (IT) in current use, the electronic medical record (EMR) has the most wide-ranging capabilities and thus the greatest potential for improving quality. Research has demonstrated the quality benefits of electronic documentation and viewing, prescription and test ordering, care management reminders, and messaging, among other EMR functions [2].

In a study carried out among physicians on acceptance of medical information systems, over three-quarters of the respondents agreed that EMRs would improve both quality of care and quality of practice (i.e., work life). To a lesser extent, respondents believe that practice productivity would increase with an EMR. This later perception may reflect in part physician experiences with early clinical systems that often offered little in the way of time savings. Doctors' acceptance is critical to widespread adoption of EMRs, yet there is little independent research on their perceptions about EMR [3].

This paper attempts to address this void by conducting a study of doctors' and allied health professionals' knowledge and uses of EMRs in a large, tertiary care hospital with the objectives to find out the extent of computer use among health care professionals in daily practice and also to find out their knowledge and uses about electronic patient records.

METHODOLOGY

This was a cross sectional study carried out to ascertain the awareness and uses of electronic medical records among doctors and allied health professionals working at a large tertiary care teaching hospital in coastal Karnataka.

The sample size was calculated by estimation of proportion, where it was assumed that the anticipated proportion of the event in the population was assumed as 50% with a power of 80% and a relative precision of 20%. The sample size calculated thus was 96 and a non-response of 10%, so the total sample size was found to be 106 respondents. The sampling methodology used was Stratified Random Sampling.

The list of all the doctors and allied health professionals working in all 35 specialties of the hospital were obtained for the purpose of selecting the respondents for the study. The post graduates and interns were excluded from the study. In the first stage, each specialty was considered as separate strata.

Since the sample size requirement was 106, doctors from all the specialties were selected by simple

random sampling. In specialties where there were only three or less than three doctors, all of them were included for the study. But finally only 88 of selected 106 respondents were participated in the study.

The data was collected using a pretested semi structured proforma adapted from a study carried out among child health providers at Florida [7]. The data was collected after obtaining prior permission from the hospital authorities, the selected study subjects were contacted, and a written informed consent was taken from the subjects and proforma were distributed to them. The proforma has following sections: demographic information (age, gender, years in practice, qualification), Extent of computer use in daily practice, awareness about electronic medical records, and perceived benefits of using electronic medical records. The collected data was analysed using Statistical package for social science (SPSS version 11.0).

RESULTS

Of the 106 respondents planned for the study only 88 responded to the proforma and participated in the study. The overall response rate was 83 percent. The table 1 describes the baseline characteristics of respondents'. Above 50% percent of the respondents were in the age group of 32-50, and 80% of them were in clinical practice for about 5-10 yrs.

Table 1 Baseline characteristics of respondents

Characteristics	Number (%)
Age in years	
20-30	17(19.3)
31-40	35 (39.8)
41-50	23 (26.1)
51-60	13 (14.8)
Gender	
Male	70 (79.5)
Female	18 (20.5)
No of years in current practice	
< 5	28 (38.9)
5 - 10	30 (41.7)
> 10	14 (19.4)

Computer use and satisfaction level of computerization in clinical practice

Before assessing the awareness of electronic medical records the respondents were queried on their extent of computer and internet use for their clinical practice, which was found to be 96.6% and 94.3 % respectively. Their satisfaction level on the extent of

computerization available to them in their clinical practice was comparably low as only 15.9% of the respondents stated that they were very satisfied with that. Majority (77.3%) was expressed neutral stand and 6.8% were very dissatisfied with level of computerization in their clinical practice.

Knowledge and source of awareness about electronic medical records

Of the total respondents, 89.8% has awareness about EMR, and it was from the various sources (Table 2). The awareness was as per the definition which had been stated in the questionnaire designed for the study. The respondents who were aware of EMR had rated the different benefits of EMR which were mentioned in the questionnaire.

Table 2 Awareness about Electronic medical records

Source of Awareness	Number (%)
Overall Awareness	79 (89.8)
Articles	18 (22.7)
Colleagues	13 (16.5)
Conference	17 (21.5)
Internet	18 (22.7)
Other hospitals	13 (16.5)

The table 3 shows benefits of EMR for different purposes perceived by study group. Around 90% of respondents stated that they could check the laboratory reports of patients, if they had EMR in their hospital, followed by diagnostic reports, patient records and reference material (88.8%). But only 56.85% of the respondents stated that it could increase their time for patient care.

Table 3 Perceived benefits of EMR

Benefits	Number (%)
Patient registration	79 (89.8)
Drug reference	66 (75.0)
Lab results	80 (90.9)
Increased time for patient care	50 (56.8)
Electronic prescription	55 (62.5)
Diagnostic report	78 (88.8)
Reference material	71 (88.7)
Billing	64 (72.7)
Patient records	78 (88.6)

Since the study was aimed at ascertaining the perceptions of the clinicians on use of Electronic Medical Records, the disadvantages which they

perceive would be encountered while using the EMR, was also an objective. The disadvantages were then categorized as with regards to productivity, financial, technical difficulties and patient security, the respondents had to say which aspect of each of these categories would be a disadvantage and to what extent.

Table 4 reveals that under the category productivity, 23.9% of respondents felt that lack of time to implement the system would be a disadvantage. Under financial disadvantage 19.3 % of them felt maintenance cost of EMR would be high. Under technical difficulties, lack of uniform standards and loss of patient records would hinder implementation of EMR. With regards to concerns about patients, 77% felt that privacy and confidentiality of their records would be a hindrance.

Table 5 Perceived disadvantages of EMR

Disadvantages	Number (%)
Productivity	37 (42)
Lack of time to implement sys	21(23.9)
Data entry	4 (4.5)
Difficult to use	5 (5.7)
Disrupts work flow	7 (8)
Financial	35 (39.8)
Inadequate returns	14 (15.9)
Maintenance cost	17 (19.3)
Upfront costs high	4 (4.5)
Technical difficulties	39 (44.3)
Lack of uniform standards	19 (21.6)
Temporary loss of patient records	18 (28.5)
Technical expertise	2 (2.3)
Patient concerns	77 (87.5)
Privacy /confidentiality of records	77 (87.5)
Patient not wanting physicians to use EMR	0 (0)

DISCUSSION

This study was aimed to find out the awareness of health care professions and their perceptions of using Electronic Medical Records. It was found that although majority (96%) of respondents uses computers in their clinical practice, only 89% of them were aware of EMR; this might be due to the fact that they have been using only paper based records. In a study carried out by Hier [4], respondents in their clinical settings believed that practice productivity would increase with an establishment of EMR.

In the present study also respondents felt that productivity would be affected, since it would take time to implement the system. This perception reflects the physician experiences with earlier Hospital Information Systems (HIS), which did not contribute much to time saving. In another study on resistance to

use EMRs by physicians where nearly three-quarters of the physicians felt usage would have to be mandated to ascertain EMR utilization. The above study findings also suggest that a significant percentage of physicians may be unwilling to devote sufficient time to EMR training. This concern of physician regarding productivity is critical so that they should be motivated to participate in training to use EMR [5]. In another study it was found that EMR to be implemented would have face challenges from the individual physicians and organizations where it has not been implemented. The main challenge would be its integration into the already busy clinical workflow [6].

A study conducted in Florida concluded that the majority of physicians currently believe EMR benefits outweigh costs, it comes as no surprise that nearly 80 percent feel an EMR system should be implemented [7]. Our study also shows same results as only 39.8% of clinicians felt that there would be financial difficulties, if an EMR is implemented, but majority of them were concerned with privacy issues of patient's records.

In another study, it was recommended that adoption of Patient access to electronic health records (PAERS) as a means of improving efficiency can be adopted only when the issue of patient acceptance on PAERS has been addressed [8]. As per a study carried out to find out barriers to EHR implementation lack of capital resources and concern about loss of productivity during transition to an EHR system are rated among the top five barriers for clinical practices that have implemented EHRs and those who have not implemented [9].

CONCLUSION

The study was carried out in the INDIA, and it is relevant to be discussed in the present day context, where more and more of Indian hospitals are contemplating a switch over to EMR from paper based records.

The findings of the study also indicate the concerns among physicians on its implementation aspect and the financial burden which the hospitals might have to incur. Although most of the respondents were aware of EMR, they are apprehensive of its integration into the present system and more importantly the sustainability of such a system, patient's acceptance of it and issues regards to privacy, and huge number of patients in a conventional hospital.

The success of such a system depends also on the efforts of the health care community to acquaint them with the functioning and help the administration to implement it effectively. The need of the hour will be to develop EMR systems which can be custom made as per the present and future requirements of hospitals.

LIMITATIONS

A major limitation of this study was that, it was conducted in a single hospital. Most of the literature is on the study of physicians who have used electronic medical records, whereas in the present study, it was carried out at hospital where currently paper based medical records are in use.

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